



the fact that many countries have become aware of the increasing potentials for food production from the sea. For example, Japan and the Soviet Union launched vast high seas fishing fleets during the past decade, while the North American fisheries have confined for the most part their efforts largely to traditional waters. The countries of North America and Europe have been leaders in introducing technological developments for better utilization of catches, but increases in fishery production have been far less spectacular. Fishery catches in North America increased only 16 percent between 1950 and 1962. The increase in Europe was 38 percent. In contrast, an increase of 1,500 percent was achieved in Latin America, 150 percent in Africa, 130 percent in Asia and 120 percent in the Soviet Union.

Granted, the increase in Latin American production has been mainly in anchovy for the Peruvian fish meal industry. Nevertheless, the trends are significant--the North American industry has not carried out a vigorous policy toward increasing the use of high seas fishery resources, while other nations have intensified their efforts. Our fishery industry has been largely static. However, there are indications of technological advancements which could spark a new growth.

International trade in fishery products is growing. The volume of world exports in 1963 was almost three times as great as in 1948 and was 60 percent larger than in 1958. In 1963, fishery exports of some 130 countries were valued at more than \$1.5 billion, 50 percent higher than 1958.

The importance of purchasing power in developing new world markets is reflected in the pattern of world trade. North America and Europe combined, bought about 83 percent of the total volume of world imports of fish in 1963. In contrast, Africa, Latin America, and Asia together--countries with a relatively low purchasing power--accounted for only about 14 percent of the world import total.

As incomes and populations grow in North America and Europe, there is a pronounced increase in the demand for fish. However, equally important is the change in the type of products desired in these countries. Rising incomes are reflected in a demand for higher priced products. As a result of this shift, producers of the lower valued products are seeking and finding markets in some of the lower income areas of the world. This tendency for a change in income to be reflected in consumption patterns is a significant factor for the North American fishing industry to keep in mind. And the European Common Market has potential for further increases in per capita disposable income. Thus we can expect increased demand from this market area for such high valued items as crab, lobster, and shrimp, the more desirable species of groundfish, salmon, halibut, and the flatfishes.

Technological developments in processing and product form have had an important impact on world trade in recent years and likely will be just as important in the future. The development of the cold-chain has resulted in an increasing proportion of fishery products moving to market in fresh and frozen form. Trade in dried, salted, and smoked fish has declined since 1945. This trend has

been most pronounced in North America. However, it may well be one of the most important developments in Western Europe in the next decade. The extension of the cold-chain to supermarket type of retail installations and to the home is just getting under way in Europe. Rapid advances will be made in the next decade and significant changes in product form and method of distribution of fish in Western Europe will result.

I have mentioned several factors that have been important in the recent expansion in the volume of world trade. Now I want to touch briefly on trends developing throughout the world to reduce restrictions in international trade, especially tariff and nontariff restrictions.

There is little question that international trade is important in helping developing nations to achieve stability and progress in freedom. It is also important that the flow of fishery products be channeled through world markets in a manner that will satisfy human wants and needs.

We are engaged in the Kennedy Round of Tariff Negotiations, seeking to reduce trade barriers on a reciprocal basis for the purpose of increasing international trade. In the United States, the Trade Expansion Act of 1962 gives the President the tools to effectively bargain down trade restrictions. However, I want to emphasize that the United States now has one of the lowest overall tariff schedules on fishery products in the world fishing community.

The Kennedy Round negotiations represent an opportunity to enlarge the benefits of trade for all nations of the free world. We in North America as well as our counterparts in Europe and Japan bring to these negotiations special and highly charged domestic interests, and unique within-country problems. No country will be able to gain all the advantages it would like. These negotiations are expected to continue through the present year and into 1966. They will be complex and difficult, for stakes are high involving vital economic interest of many nations.

From the standpoint of some individuals or industries, segments of the fishing industry, for example, action taken to free world trade poses immediate economic hardship. But the reduction in trade barriers, making possible freer trade and opening new markets, I would hope, will provide a challenge to the American fishing industry which could very well in the long run more than offset immediate adverse effects.

Competition in international markets grows more vigorous as other trading nations enlarge their fisheries. As competition for markets increases so do international conservation problems increase, and the need for broad cooperation between nations to solve the present and foreseeable problems of the development, management, and conservation of aquatic resources, commonly fished by many nations, becomes urgent. If we solve these problems in the future the fishing industry will prosper; if we fail we can only predict a further contraction of this vital industry. We would hope that the 1958 Convention on Fishing and the Conservation of the Living Resources of the Sea will soon come into effect to help in this effort.

## Potential Demand

Now let us turn to the other part of world demand--that part which lies outside present commercial trade channels--not because the wants and desires are lacking but because the people do not have the means of purchasing the products to satisfy these desires.

It has been estimated that one half the world population today is hungry, and that over 500 million of the world's 3 billion people are actually suffering protein malnutrition. Inadequate diet can result in lassitude, susceptibility to infection, persistent mental retardation, and a number of serious diseases. It can also cause horrible disfiguring diseases in infants and children, robbing them permanently of physical strength and mental agility.

Protein deficiency exists in all of Asia except Japan and Israel, all but the southern tip of Africa, the northern part of South America, and almost all of Central America, and the Caribbean countries.

The low income countries of Latin America, Asia, and Africa make up half the free world's population. They have massive economic and social problems and a shortage of means to meet their aspirations.

In 1961, at the FAO International Conference on Fish and Nutrition, the representatives were challenged to provide sources of fish protein to persons in all walks of life in nutritive forms and within the range of all income groups. It is now clearly indicated that fish protein offers a practical way of getting the necessary ingredients into the diet of undernourished people of the world. Fish is a nutritious human food and some of its byproducts are a valuable additive to food for animals.

Some experts of marine resources believe that about 90 - 95 percent of the oceans' productivity is unused and that with proper management and conservation it can be increased at least ten-fold without endangering the supply. If so, the world's oceans could provide at least 500 million tons annually as opposed to the present 50 million tons. It was suggested by Dr. Larkin earlier in this meeting that the potential catch of fish from the sea is at least 500 million tons, ten times the present catch, and may in fact be as much as two billion tons or 40 times the present catch.

Yes, the resources of the sea can provide valuable food to meet the problems of malnutrition throughout the world today. This is especially significant in view of the prediction that our food supply must double within the next 40 years to feed the increased population.

The United States National Oceanography Program has, for the past five years, been accumulating the basic physical, chemical, and biological knowledge necessary for understanding the ocean and its resources. We are now ready for the ancillary supplemental program--the National Ocean Engineering Program--whereby we may translate this knowledge into effective application of engineering principles to the problem of efficiently harvesting or mining the ocean's resources. The early implementation of ocean engineering studies is vital to achieving the full potential of available marine food resources and to increasing the efficiency of harvesting fish which will enable industry to expand its position in world trade.

But in order to make this vast food resource available to hungry people we must have a more highly developed system of trade and aid--one which requires international cooperation as well as cooperation between governments and private business. This is one of the central issues at the heart of President Johnson's Great Society concept.

The President, in his State of the Union Message, stressed one of the goals of the Great Society when he said: "I will seek new ways to use our knowledge to help deal with the explosion in world population and the growing scarcity in world resources."

Through our overseas aid programs and especially through Food for Peace, we are seeking to encourage economic growth, improve living standards, and increase buying power among the hundreds of millions of people in the developing countries of the world. Fish can play a decisive role in these programs.

Now you may ask the question--How can private industry help as long as this part of the world market lies outside commercial trade channels and is dormant? My answer to that would be--This latent demand is continually being stimulated and developed through the process of economic growth. Policies of both the industrialized and the developing countries have stressed the importance of continued and expanded economic growth of the less developed countries. Economic growth has become a major factor in maintaining political stability. As this economic growth takes place, people of these countries increase their income. As they increase their incomes, latent markets become active markets.

As these markets become active, we should be prepared to supply them with fishery products they want and can buy. These will not necessarily be the same "luxury type" products being used to satisfy the demand in North America and Western Europe. They must be low-priced products which are preservable and nutritious.

We need further work to develop products to meet this potential demand. We cannot supply this market with fresh fish; neither can we count on their being able to handle large supplies of frozen products.

Preservable products which are possibilities are the conventional canned and cured products. We also need continued research on the adaptation of new technology, such as freeze-drying and irradiation, as a means of solving this problem.

With very few exceptions, the manufacture of fish protein concentrate has not yet received the interest it deserves. Several countries, including the United States and some international organizations, have given increasing recognition to the importance of fish protein concentrates in improving the diet of people in countries where animal protein is lacking.

We are on the threshold of marked improvement in commercially and economically feasible methods of manufacturing fish protein concentrates. With this development, we can expect to bring into commercial use many species of fish not now utilized, and we will also most certainly see an upgrading in the use of some species now taken only for industrial uses. Within the past three decades, we have seen our own menhaden resource upgraded from use as a fertilizer to use as a valuable protein supplement in animal and poultry feeding. The next step will be upgrading products from this resource from an animal feed to a protein rich additive to the human diet.

Off the North American coasts abound large stocks of hake, mackerel, and certain herring-like fishes scarcely utilized today. Production could be increased many times if such species were caught up to the limit of their sustainable yields. We should no longer ignore this bountiful natural resource because of lack of marketability, but rather we should strive to develop methods to make these species available for the market. A large step in the right direction is being made in the northwest, where I understand a hake fishery will be started this year.

In conclusion, let me sum up the challenge that world markets and demands pose to the North American fishing industry. World trade in fishery products has been expanding rapidly and has been undergoing significant changes in terms of products and product form moving between countries. Thus far, the United States fishing industry has not taken advantage of the opportunities for developing export markets for fisheries products. In fact, in the postwar era we have lost some of our prewar markets. Many of these because of conditions beyond our control. There can be no doubt but that expanded world markets for American-produced fisheries products present a dynamic challenge to the American fishing industry. Consider for a moment the continued economic development and a potentially improved environment for world trade which offer the possibility of even greater increases in trade in the next decade. There are significant advantages to be gained by the North American fishing industry from this expanding market if we work to take advantage of the opportunity. If we can improve our technology and efficiency in harvesting and processing of fish, and merchandise our products aggressively in world markets, we can increase the net revenue from our fishery resources and at the same time extend the volume and species of fish taken by our industries.

In addition to the expansion of the present effective demand, there is a great potential for extending the market to lower income areas of the world, where the purchasing power is currently lacking. Here again we need to seek the means of harvesting and processing to provide a nutritious product that can be brought into the price range of the lower income areas. We are close to a great development in the fish protein concentrate program. This new technology has within it the means to bridge the gap between the vast untapped resources of the oceans and the dire need in large areas of the world. So I say, let's not despair about present difficulties but rather take heart in the great opportunity available to us; few industries there are in our country which possess such potential growth possibilities; let us aggressively look for ways to take advantage of the developing vast world market.

Thank you very much.

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